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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,994	12/01/2005	Hideaki Furukawa	IPO-P1964	7008
3624 7590 01/16/2009 VOLPE AND KOENIG, P.C. UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			EXAMINER SHIKHMAN, MAX	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 01/16/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/558,994

**Applicant(s)**

FURUKAWA ET AL.

**Examiner**

MAX SHIKHMAN

**Art Unit**

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-71 is/are pending in the application.
- 4a) Of the above claim(s) 37-71 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 9-36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 06/13/2008, 03/27/2008, 12/01/2005



## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Bloomfield 20010036322, "Image processing system using an array processor".

#### **(i) Regarding Claim 1:**

(Note: pipeline = [0020] [0045] [0097] [0101] [0109] pipeline.

first data-order converting=62. second data-order converting unit=110

image processing unit=38)

1. An image processing apparatus for processing electronic image data obtained by image pickup operation via an optical system, the image data having two-dimensionally-arranged pixel data in the row direction and the column direction, the image processing apparatus comprising:

a memory that stores the image data at least before (34) image processing (38) and further stores the image data after (44) the image procession;

a first data-order converting unit (62) that reads the pixel data in units of a block of the two-dimensional arrangement ([0059] "32-bit words from up to 4 sensor taps 80, 81". So, 4x32 block) of the image data via a bus (28) from the memory and thereafter outputs the pixel data in the block in the ... direction; (84)

an image processing unit that is connected to the first data-order converting unit (62) so that a pipeline ([0020] [0045] [0097] [0101] [0109] pipeline) processing can be performed via an information sending channel different from the bus, (different bus) inputs the image data outputted in the ... direction from the first data-order converting unit, performs the image processing, (38) and thereafter outputs the image data in the ... direction; and (62,42)

a second data-order converting unit (110) that is connected to the image processing unit so that a pipeline processing ([0109] pipeline) can be performed, converts the image data outputted in the ... direction from the image processing unit into the image data in the row correction, and outputs the converted image data. ([0064] "110 that converts the serial data to parallel data.")

Bloomfield discloses row direction 24,62,84.

Bloomfield discloses everything as described above except, column direction. The claim would have been obvious because the substitution of one known element (column) for another (row) would have yielded predictable results to one of ordinary skill in the art the time of the invention.

**() Regarding Claim 2:**

2. The image processing apparatus according to claim 1, wherein the first data-order converting unit can change the size at least one of the image data in the row direction and the image data in the column direction read from the memory in units of a block. ([0099] "scalability features to allow processing of different size images")

**() Regarding Claims 3,4:**

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3. The image processing apparatus according to claim 1, wherein the image data before the image procession is any of the following;

image pickup data that is obtained by photoelectrically converting, by image pickup means, a subject optical image formed by the optical system and outputted;  
(20,22)

non-compressed image data that is the image pickup data subjected, as occasion demands, to predetermined processing, excluding compressing processing; and

compressed image data that is obtained by compressing processing after performing predetermined processing on the image pickup data, excluding the compressing processing, as occasion demands.

**() Regarding Claim 5,6**

5. The image processing apparatus according to claim 1, wherein the image processing unit comprises a distortion correction processing unit that corrects the distortion aberration due to the optical system. ([0017] "preprocesses the sensor input and adjusts for skew and displacement")

3. Claims 7,8 rejected under 35 U.S.C. 103(a) as being unpatentable over Bloomfield 20010036322 in view of Akiyoshi 20020126917.

**() Regarding Claims 7,8:**

Bloomfield does not disclose the limitations of claims 7.8.

Akiyoshi discloses as follows.

7. The image processing apparatus according to claim 5, wherein the distortion correction processing unit comprises:

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an interpolating-coordinate generating unit that generates interpolating coordinates; ([0010] "interpolating the coordinates". [0016])

an inner memory unit that partly stores the image data; and (16. [0013] memory)

an interpolation calculating unit (14,18) that generates pixel data of interpolating coordinates from image data stored in the inner memory unit (Fig23: 16) based on the interpolating coordinates generated by the interpolating-coordinate generating unit. ([0010] "interpolating the coordinates". [0016])

As Akiyoshi discloses, it is desirable to generate interpolating coordinates. This allows for quick generation of interpolated images. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Akiyoshi interpolation method in Bloomfield, interpolating an image from two images.

#### ***Allowable Subject Matter***

4. Claims 9-36 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: Claims 9,10 would be allowable since the prior art does not disclose, a distortion-correcting-coordinate converting unit that obtains coordinates in the image before correction of the distortion, corresponding to the coordinates generated by the interpolating-position generating unit, along with other limitations in the claim. Claims 11-36 depend from Claims 9,10.

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***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MAX SHIKHMAN whose telephone number is (571)270-1669. The examiner can normally be reached on Monday-Friday 8:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JINGGE WU can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jingge Wu/  
Supervisory Patent Examiner, Art Unit 2624

/Max Shikhman/  
Examiner, Art Unit 2624  
1.12.2009